IN THE CLAIMS

1-25 (Canceled).

26. (Currently Amended) The method of Claim 41 [[25]], wherein the exposing step results in a change in a refractive index of the core.

27. (Currently Amended) The method of Claim 41 [[25]], wherein the exposing step results in a change in a refractive index of the cladding.

28. (Currently Amended) The method of Claim 41 [[25]], wherein the exposing step results in a change in a refractive index of the core and the cladding.

29. (Currently Amended) The method of Claim 41 [[25]], wherein the exposing step is performed using a laser beam.

30. (Currently Amended) The method of Claim 41 [[25]], wherein the fiber is doped with germanium.

31-40. (Canceled).

41.   (Currently Amended) A method comprising the steps of:

~~performing the steps of Claim 25 to form a first Fabry-Perot sensor in an optical fiber;~~

forming a mask over an optical fiber, the optical fiber having a core surrounded by a cladding, the mask having a single opening;

exposing the opening to light propagating outside the optical fiber such that a refractive index of a portion of the fiber corresponding to the opening is changed to form a Fabry-Perot cavity sensor, whereby light propagating in the optical fiber after the Fabry-Perot cavity sensor is formed is reflected at a first end and at a second end of the portion and propagates backward along the optical fiber, light reflected at the first end of the portion interfering with light reflected

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from the second end of the portion such that changes in a length of the portion result in observable changes in an amplitude of such reflected light;

repeating the forming and exposing steps ~~of Claim 25~~ at least once such that a plurality of Fabry-Perot cavity sensors are formed in the optical fiber; the plurality of sensors being spaced apart;

launching an optical pulse into the optical fiber, ~~the optical fiber having a plurality of optical sensors formed therein,~~ the pulse having a duration less than a time required to travel a smallest distance between the two most closely spaced sensors; and

measuring amplitudes of backward-propagating reflection peaks in the fiber at a plurality of times, each of the times corresponding to a location of one of the plurality of ~~optical~~ sensors.

42. (Canceled).

43. (Previously Presented) The method of Claim 41, wherein the Fabry-Perot cavity sensors are designed such that a cavity length varies only over a quasi-linear range of a half fringe under conditions to which the Fabry-Perot cavity sensors are exposed.

44. (New) The method of Claim 41, further comprising the steps of:

measuring an amplitude of background noise in the fiber at a time close to each of the reflection peaks; and

calculating a ratio of each reflection peak amplitude to a corresponding amplitude of background noise.